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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,138	03/24/2004	Samuel Fineberg	200314538-1	5258

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EXAMINER	
TSUI, DANIEL	

ART UNIT	PAPER NUMBER
2185	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/808,138	FINEBERG ET AL.	
	Examiner	Art Unit	
	Daniel Tsui	2185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *12-46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/27/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-11, drawn to a memory access system with a primary network persistent memory and a mirror network persistent memory, classified in class 711, subclass 162.

   II. Claims 12-29, 38-41, and 46 are drawn to allocating and accessing memory regions on a system with primary and mirror memory units, classified in class 711, subclass 162.

   III. Claims 30-37 and 42-45, drawn to handling a client process and access requests to network memory units, classified in class 711, subclass 162.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I and III and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination (II and III) as claimed does not require the particulars of the subcombination (I) as claimed because the claims only require any system with a primary and a secondary network memory unit. The subcombination has separate utility such as a persistent memory access system functioning with some other method that is not that of group II or group III.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

3. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as a method for allocating memory that does not include the method of handling client access requests as in group III. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to

provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

4. During a telephone conversation with Kevin Hart on August 28, 2007 a provisional election was made without traverse to prosecute the invention of I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on September 27, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Oath/Declaration

6. The declaration filed on March 24, 2004 has been considered and accepted by the examiner.

Drawings

7. The drawings filed on March 24, 2004 have been considered and accepted by the examiner.

Specification

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

9. The abstract has been considered and accepted by the examiner.

10. The specification has been considered and accepted by the examiner.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1, 2, 8, 10, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang (US 7,251,713).

As per claim 1, Zhang teaches a persistent memory access system comprising:

A primary region corresponding to a predefined portion of a primary network persistent memory unit communicatively coupled to at least one client processor via a communication system (primary storage controller 108 and storage 116, see figure 1), wherein the primary region is assigned to a client process on a client processor node and is configured to store information received from the client process (it is an inherent

property of network attached storage devices to store information from the client processor nodes; see column 5, lines 34-38);

a mirror region corresponding to a predefined portion of a mirror nPMU communicatively coupled to the client processor node via the communication system (secondary controller 112 and storage 118, see figure 1; column 5, lines 7-9), wherein the mirror region is assigned to the client process and is configured to store the information received from the client process.

As per claim 2, Zhang teaches that the nPMUs are physically separate units and are characterized by separate fault domains (see column 4, lines 59-61).

As per claim 8, Zhang teaches the system further comprising a persistent memory unit library residing in the client load that comprises functions that permit directly writing and reading information to the regions (interface software 307, see figure 2 and column 5, lines 62-65).

As per claims 10 and 11, Zhang teaches the system further comprising a persistent memory manager coupled to the processor node for creating the primary and mirror regions on the storage devices (the storage controllers 108 and 112 serve to control the storage areas 116 and 118 and allow data to be stored on the devices). This functionality would include allocating and deallocating regions for use.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Golding (US 6,477,617).

As applied in the rejection above, Zhang teaches a persistent memory access system with a primary region and a mirror region. Zhang does not teach the memory regions comprising virtual addresses corresponding to the physicals locations where the information is stored. Golding teaches a memory storage system that uses virtual addresses so that data can be stored across multiple physical devices while still appearing to be on one storage (see column 8, lines 45-56). Golding also teaches translating between the virtual addresses to physical addresses. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to use virtual addresses for both the primary storage region and the mirror region so that the data stored to these regions can be stored across multiple physical devices while appearing to be on a single unit. It would have also been obvious to perform the address translation so that the clients using virtual addresses can access the physical locations where data is to be stored.

15. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Golding and further in view of Olson (US 5,479,628).

As applied in the rejection above, the combination of Zhang and Golding teach a persistent memory access system that uses virtual addresses. The references do not

teach using a base pointer corresponding to a difference in the primary virtual address and the corresponding client address for translating. Olson teaches a system that translates virtual to physical addresses and uses a base pointer. It would have been obvious for the claimed system to also use a pointer to perform virtual to physical address translation since it is necessary in a known technique of performing such address translations.

16. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of Garg (US 7,266,645).

As applied in the rejection above, Zhang teaches a persistent memory access system with a primary region and a mirror region. Zhang does not teach the system comprising metadata identifying the regions assigned to the client process or caching the metadata. Garg teaches a system that uses metadata for data objects, the metadata including locations that the data is stored (see column 4, lines 8-11). Garg also teaches caching the metadata (cached metadata 90b, see column 3, lines 47-49). It would have been obvious at the time the invention was made to a person of ordinary skill in the art to use metadata to identify the regions where the data is stored and to cache the metadata so the system can access it without having to go to the storage.

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang in view of API (IEEE dictionary).

As applied in the rejection above, Zhang teaches a persistent memory access system with a primary region and a mirror region. Zhang does not teach an API residing in the client node that causes the client process to access the functions of the PMU library. However, it was well known in the art at the time the invention was made for computer systems to use APIs as the interface between applications (i.e. the client process) and the system (see definition in IEEE dictionary). Therefore it would have been obvious for the client processor node to include an API that would allow the client processes to access the library functions that perform reading and writing to the storage devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Tsui whose telephone number is (571)270-1022. The examiner can normally be reached on M through F, 8:00-4:30 (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571)272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DT

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